The Excavating Engineer

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Construction of the Interboro Rapid Transit Company's New Shops in New York

Description of Excavation and Foundation Work Now Under Way by the Rosenthal Engineering Contracting Company

OUT at 148th Street and the Harlem River in the City of New York, just opposite the new Yankee Stadium, work is now under way on the new administration buildings, repair shops and storehouses, which the Transit Commission of the City of New York are building for the Interboro Rapid Transit Company.

The contract, which is in the efficient hands of the Rosenthal Engineering Contracting Company of Brooklyn, calls for the excavation and the foundations of the buildings. The contract for the work above the ground has not been awarded as we go to press.

The 20-B ready to move up. Jack Hannan, engineer, and Carl Johnson, fireman.

The Excavation

Work on the excavation, which totals about 35,000 cubic yards including the footings, started in February of this year when a new Bucyrus 20-B high lift shovel was cut in to buck the frost, preliminary operations having started the month before. This machine was purchased with a clamshell bucket and 35-foot boom, as well as a 20½-foot shovel boom and a 17-foot handle. It was first used as a shovel on the general excavation for the buildings, which excavation averaged about 3 feet in depth with heavier cuts on the sides running up to 15 feet deep.

When this work was completed, it was equipped with the clamshell boom and bucket and put to work on the excavation for the footings.

The contract includes the foundations for four buildings, a repair and machine shop 550 by 200 feet, an administration building 120 by 120 feet, and two storehouses, one 200 by 160 and the other 200 by 70, or a total area of 900 by 200 feet.

The concrete work amounts to 6,000 cubic yards. The largest wall footing is 8 feet and some of the spread footings are 11 x 13 feet, which call for a 14-foot trench. The trenches for the side walls were excavated by a Keystone grader rented from Crooks & Dixon of New York. The footings were excavated nearly to grade and the remainder was mucked by hand and cast into the fill between that footing and the next. Backfilling has been carried on largely by trucks, there being six to seven of them in service. When this article is written the Bucyrus 20-B is engaged in cleaning up, and will be used to assist in the backfilling of the larger footings.

The concrete is mixed with two one-yard and one smaller mixers, Ransome and Koehring.

The Rosenthal Engineering Contracting Company have the general contract for this work. The shovel is operated by the Utilities Contracting Company and the trucks by the Contractors Service Corporation, subsidiaries of this company.

Some Close Quarter Work Was Necessary in Cleaning Up Beside the Side Walls

13 x 11-foot Footings Ready for the Concrete

Filling in Footings with Truck

General View of Operations

One of the Walls Being Prepared for the Concrete

Views of Construction of Interboro Rapid Transit Company's New Shops in New York

The hardest worker on the job is Jos. Rosenthal, President. Hardly a night passes that he does not go home begrimed and bespattered from intimate contact with the job.

L. H. Cohn, Vice-President and another active member of the firm, has charge of the finances. Mr. Cohn has the distinction of being the only foreigner who served on the French General Staff during the war. He was a Captain in the French army, going across in 1915. Joseph Meltzer is Manager of Construction for the firm and directly in charge of all the contracts. Timothy Lynch is Superintendent on this job. The shovel is operated by Jack Hannan.

Besides the character of its personnel, the outstanding factor in the success of this firm is the fact that it is one of the few contracting outfits in New York City who own all their own equipment. Shovels, concrete mixers, trucks, Insley towers, pile drivers, etc., are ready to snap on to a job at the crack of the pistol. This is an important reason why the Rosenthal Engineering Contracting Company will rise high in this part of the world.

Responding to Brooklyn's Cry for More Water

Description of the T. A. Gillespie Company's Eight-Mile Water Main Contract in Brooklyn

THE ever-increasing demand for water from greater New York has led to extensive enlargements and extensions of the present system by the Board of Water Supply of the City of New York, part of which, envolving the laying of 20,000 linear feet of pipe on the Catskill Aqueduct between Kensico and Hill View Reservoirs, was described in our July number 1922.

At the present time the T. A. Gillespie Company of New York are engaged in a large contract which involves the distribution of the water from the Catskill Aqueduct to the Flatbush and Bay Ridge Sections of Brooklyn and, incidentally, the hooking up of this system with the Silver Spring Reservoir on Staten Island by means of syphons now under construction across the narrows in New York Harbor.

It is with the first-mentioned part of this new work that this article deals, that is, the distribution to the Flatbush and Bay Ridge Sections of Brooklyn, which the Gillespie Company now has under way. This calls for the laying of eight miles of 72-inch lock bar steel pipe manufactured by the East Jersey Pipe Co.

To carry this pipe a 10 x 10-foot trench is being excavated. The contractors have a fleet of equipment on the job, including two 30-B Bucyrus shovels with extra clamshell and dragline equipment, and oversize boilers designed for burning wood when necessary; two Austin trench excavators, one steam and one gasoline operated; two Keystone excavators; one Brownhoist crane and one Northwest gasoline crane; all of which are to be used on the various parts of the work where conditions warrant.

At the time that this article is written one 30-B Bucyrus shovel with a Blaw-Knox bucket is doing the difficult task of excavating for the trench where it drops under the tracks of the Long Island and the Brooklyn Rapid Transit Railways at Fort Hamilton Parkway and 61st Street, Brooklyn.

The machine is operating from the viaduct and loading trucks. Work is complicated by the fact

30-B Bucyrus, with 40-foot clamshell boom and 1-yard bucket and oversize boiler excavating for trench for 72-inch steel pipe under the Long Island Railway and the B. R. T. Railway tracks at Fort Hamilton Parkway and 61st Street, Brooklyn; T. A. Gillespie Company, Contractors.

Looking South from 49th Street, July 23rd

Looking North from 45th Street, July 17th

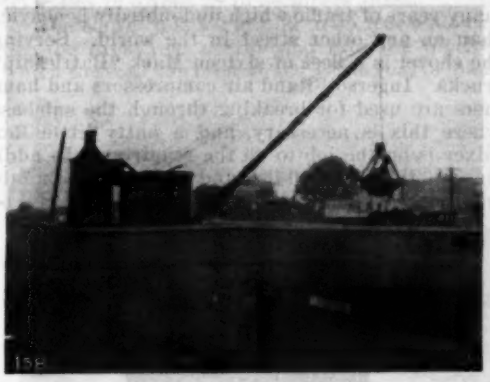
20-B Bucyrus Getting Under the Old Asphalt

C. D. Beckwith's 20-B Bucyrus Loading Trucks

that the high parapet of the bridge prevents the operator from seeing the trench. However, in spite of this, good progress is being made. Our photographs show this work clearly.

The other 30-B has been used for the heavy excavation with dragline as well as clamshell buckets and for general utility purposes. When equipped as a crane it has been unloading pipe and equipment. In the Fall both machines will cut in at what is known as Shaft 23 at Flatbush Avenue and 3rd Street, and work through city streets to 23rd Street, 22,000 feet in all. One equipped as a shovel with a ¾-yard sewer dipper

Loading Trucks — The 30-B is Operated by Peter A. Thomas



Another view of same operation. The parapet prevents the operator from seeing the bottom of the trench.

and a 30-foot dipper handle will go ahead and do the main excavation. It will be followed by the second 30-B equipped with a 40-foot clamshell boom and bucket. This machine will excavate where necessary, do the backfilling and lay the pipe. This part of the work is necessarily postponed to the last as the Board of Water Supply is obligated to the city to turn over Fort Hamilton Parkway to the city first. 18,000 feet of this from 37th Street South must be done this year and work is being pushed on this at the present time.

The work is under the efficient supervision of A. C. Askenheil, Superintendent.

Ripping Up the World's Greatest Highway

Repaving of Fifth Avenue, New York, from 42nd Street to 59th Street

WHEN Chas. D. Beckwith left his home town the nation gained what Schenectady lost. In Baltimore they say that the North Avenue and Charles Street boys learned to dance on Baltimore and Eutaw Street pavements which Mr. Beckwith mixed and laid. In any event we are sure that the gentleman in Hartford, Connecticut, who complained about changing the sun's time would not consider a change in the pavements on Oxford and Albany Avenues with any better grace, and Charles D. Beckwith, Incorporated, of New York City, is also responsible for the pavements on those streets.

In New York such boulevards as Pelham Parkway and Harlem River Speedway have been crowned by Mr. Beckwith, and the paving on 37th Street, a pavement which is compelled to endure one of the heaviest traffics we know about, has stood up admirably since applied by Mr. Beckwith's methods.

Now his latest laurels are being gained on Fifth Avenue, the world's greatest highway. New Yorkers feel safe in saying that none of the much-famed boulevards in cities of other countries can compare in importance with their Fifth Avenue, nor can any other pedestrians or passengers in high-powered cars, busses or "rick shaws" boast of or enjoy such paving as is now completed on Fifth Avenue between 42nd and 45th Streets. When the job is complete, guests at the Plaza Hotel at 59th Street may ride to the Grand Central Station at 42nd Street over a surface the smoothness of which cannot be equalled.

In short Mr. Beckwith's contract calls for the repairing of Fifth Avenue from 42nd Street to 59th Street, which means ripping up 36,000 yards of old asphalt, 4 to 12 inches in thickness, from a 12-inch concrete base and the laying of a new surface thereon.

The accompanying photographs illustrate this work clearly. Heading the procession of equipment is a new 20-B Bucyrus ¾-yard shovel, purchased new by Mr. Beckwith for the important job of ripping up this asphalt, pounded down by

many years of traffic which undoubtedly is heavier than on any other street in the world. Serving the shovel is a fleet of sixteen Mack "Battleship" trucks. Ingersoll-Rand air compressors and hammers are used for breaking through the sub-base where this is necessary, and a natty little Rex mixer is on the job to do the repairing. In addition to this, two 10-ton and one 14-ton Buffalo rollers, scarifiers, and other equipment may be

Charles D. Beckwith

seen in action, which altogether afford the passing throngs a radical change in scenery to that ordinarily found on this world-famous thoroughfare.

In reference to the performance of the 20-B shovel Mr. Beckwith writes the Bucyrus Company as follows:

"There was not one cent spent on repairs and absolutely no time lost other than delays in taking the material from the shovel. The shovel kept well ahead of the organization employed in relaying the new asphalt, and I can say with all frankness that in the 20-B shovel you have a product you can be proud of.

"Jim Manion, the operator of this machine, told me yesterday that very much to his surprise he has not found it necessary to key-up the machine in any way or to renew the packing applied by your works. Manion considers this extraordinary because in almost every case of a new shovel it is found necessary to not only tighten up stuffing boxes, but in a great many cases renew the packing which was originally supplied."

It is with Mr. Beckwith's permission, in fairness to his subordinates, that we make mention of the fact that the competition encountered on this job could not have been encountered so successfully nor the service rendered accomplished in such good measure, were it not for the able assistance of the other Beckwiths, C. C., his son, C. A., his brother, who is treasurer of the company, and D. M., his efficient plant superintendent. With this family party is associated C. B. Bolby, superintendent on this particular job, his chief general assistant, C. A. Schildauer and A. G. Van de Somme, who handles the financial details.

The job of ripping up the pavement is in the hands of James Manion at the levers of the 20-B. J. J. Murphy is inspecting engineer for the city of New York.

James Manion, Operator of 20-B Bucyrus

Stripping Coal in Pennsylvania with a Small Revolving Shovel

Description of a Small and Successful Operation in Clearfield County

THE photographs which we reproduce herewith were taken at the mine of the Boron Brothers & Richards Coal Company at Ramey, Pennsylvania.

It is not a large operation, nor is there anything novel or startling in its equipment or manner of operation. However, this operation warrants particular notice as it is an example of what can be accomplished by three practical men without the backing of big capital or heavy investment in expensive equipment.

A few years ago two brothers, Joseph and John Boron, together with a man by the name of T. C. Richards, acquired control of some promising looking coal land in Ramey, Clearfield County, in the Allegheny Mountains in almost the center of Pennsylvania. All three of these gentlemen were born and brought up in this industrious section of Pennsylvania and had spent the greater part of their lives in the mines.

Their success in this new venture was assured from the start by the manner in which these partners tackled the proposition. They all three put on overalls and went to it, and as our photo

graph indicates they are still at it. They first opened up two drift mines and operated them for a year or so, and then conceived the idea of leasing an adjoining 40 acres of land and stripping it. A ¾-yard revolving shovel was installed and operations began last October.

Their hard work has brought well-earned results. Although their underground mines are

A String of Cars from the Pit

not being pushed, one having been shut down for the greater part of the past winter, they are averaging three cars per day from their operations, with orders booked so far ahead that it is now apparent that they must make arrangements

The Three Partners; Left to Right, T. C. Richards, John Boron and Joseph Boron.

to increase their output in order to keep pace with the increasing demand.

The strip mine consists of about 300 acres of coal land with an overburden ranging from 12 to 30 feet; and with an average depth of 20 feet.

At the present time they are using a ¾-yard revolving shovel, equipped with an 18-foot boom and 24-foot dipper handle, stripping 40 acres of their property. The coal, which is a high-grade Moshanon coal, considered the best in that district, lies in a vein 28 to 30 inches thick.

The shovel takes a cut 30 to 35 feet wide casting the excavated overburden into the pit from which the coal has been mined. The coal is loaded

The Tipple and Scale House

by hand in rear of the shovel into one-ton mine cars, one man to a car. The miners are paid according to their tonnage. The cars are assembled and hauled to the tipple by mules, a distance of about a quarter of a mile. The shovel working one shift per day has no difficulty in keeping a day or two ahead of the loading operations. The coal is sold as run-of-the-mine.

The shovel crew. Horace McCausland, the operator, is at the right hand of the two men standing. Vere Richards, his fireman, is standing beside him.

Mr. T. C. Richards is in charge of the stripping operations, while Joseph Boron has the underground mines in his care and John Boron looks after the tipple.

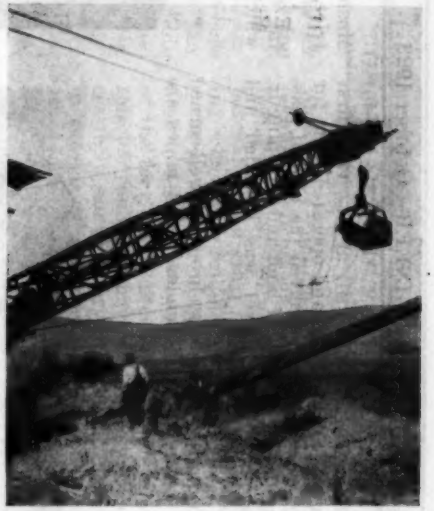
Class-14 Bucyrus dragline in action. Note large skids for operation over swampy ground.

In a 17-foot Cut, with Sand on Top and Hardpan Below

In the old lake bed there was 3 feet of muck and slimy rotted vegetable matter. It was necessary for men to be carried around machine on the bucket.

The old wooden pipe line in the foreground was dug around with the dragline without injury to the pipe.

Watering. In places this wagon could not get near the machine and a hose had to be used.



Handling the timbers over soft ground. Six of these 2 x 2-foot timbers were used under machine on the softest ground with 3 x 12-inch planks under the ends.

Views of Reclamation Work, Drainage Improvement District No. 11, Yakima County, Washington

Drainage Work with Dragline Excavator in Yakima County, Washington

Why Ditch Previously Dug with Light Dragline Excavator Had to Be Re-excavated with a More Powerful Machine

DRAINAGE Improvement District No. 7 of Yakima County, Washington, is one of approximately seventy-five regularly organized districts and sub-districts organized by this county and handled by the County Drainage Department under the provisions of the state laws.

This particular project lies between Snipe's Mountain and the Yakima River in Yakima County, Washington, five miles southwest of Sunnyside. Sixteen years ago, that is between the period of 1907 and 1910, a ditch was dug through this district for the purpose of draining level farm land which has become saturated by irrigation water, this district having been irrigated for at least thirty years. A year or so ago, however, engineers decided that the original ditch was inadequate.

The dragline used on this work was too light to handle the heavy underlying hardpan. Consequently the grade of the ditch was raised to avoid this hardpan. The depth of the ditch was sufficient according to the then accepted idea and opinion, but later experience taught the engineers that the particular type of soil encountered in this district required deeper drainage than had been provided for.

The result was that a contract was awarded to R. M. Hardy of Yakima on a cost-plus 10% basis, for the excavation of six miles of main canal, averaging about twelve feet deep with a 1½ to 1 slope and a 4-foot bottom. In a few sandy and swampy places this slope was 2 to 1 or whatever slope would stand to a 4-foot bottom. The depth of the main canal ran from two feet in the lake bottom to twenty-one feet in one heavy cut. In addition to this main canal Mr. Hardy had a mile of small laterals which he excavated with a half-yard gasoline dragline excavator rented from the Drainage Department of Yakima County. The bridge work on this project was all sublet.

The total excavation on the main canal amounted to 152,366 cubic yards. The main canal was excavated by a Class-14 Bucyrus dragline excavator with a 60-foot boom and two-cubic-yard bucket which was rented by the district from Hans Peterson of Seattle, which machine had seen much strenuous service in the past. In spite of this fact this old veteran, according to the operators on the job, rendered a very good account of itself.

The material was sandy loam underlayed with hard clay and a large amount of hardpan as hard as rock, which would break up in chunks two to three feet through. This was handled by the dragline without the use of powder. The machine was operated two eight-hour shifts by W. G. McKay, with E. G. McKay, his brother, on the opposite shift. The former gentleman to whom we are indebted for much of this information writes us as follows: "I have been running draglines almost since they came into general use, but this is the best machine that I have ever handled. We had the hardest earth digging I ever saw and never had to put in a shot. We made good time month in and month out and no serious breakdowns."

The machine was mounted on two 3-foot by 3-foot skids and six 2-foot by 2-foot timbers, 16 feet and 18 feet long, which were used to move on in the softest ground. 3-inch by 12-inch pieces of pine were used under the ends of these timbers to hold them level. According to Mr. McKay the machine was never mired, although when operated in the lake bottom, everything sank until the bottom of the runners were in mud. The water wagon could not get near the machine in some places, and it was necessary to use an extra long piece of hose with a two-inch pipe in order to water the machine. This water was hauled from the Yakima River where the ditch started until the water was turned into the irrigation ditches. The water in the drainage ditches was so alkali that it could not be used for the machine.

All of this naturally handicapped the machine in making high outputs and added to the expense of the work. The ditch, furthermore, followed the course of the old ditch. The old spoil bank had to be dug away to provide runways for the machine. Two long moves were made by the dragline in the course of the work and numerous pipe lines were encountered which were necessary to dig around. One of our photographs shows such a pipe line, and illustrates clearly the obstacles that presented themselves to any high output. At the time this view was taken the dragline was cutting a deep cut through a sand hill. The cut was 27½ feet deep and 100 feet wide. The old ditch previously mentioned parallelled the new ditch and consequently it was necessary to dispose of 90% of the material on one side as was the case for the greater part of the work. In spite of this, the material was handled in such a manner that the machine never was blocked.

The pipe shown in the foreground is of wood and at the time carried irrigation water to 1200 acres of land nearby. It was impossible to shut the water off, consequently the operator proceeded to dig around it. A steam hammer was hung on

the boom and piling was driven as supports to the pipe which was so rotten that it could be cut with a jackknife. So skillfully was the machine handled that no damage was done to the pipe and very little hand work was necessary.

On steady runs the dragline moved from 750 to 800 cubic yards an eight-hour shift, and in a short stretch of new ditch where the earth was cast on both sides, it made from 1000 to 1200 cubic yards in this period with ease.

Work was started on January 1, 1921, and was completed on November 1st of the same year. It was done at a cost of $.188 per cubic yard. This comparatively high cost was made necessary due to the handicaps, delays and other causes mentioned above.

We are indebted to Mr. T. W. Macartney, drainage engineer of Yakima County and to W. C. McKay, operator of the dragline, for the information contained in this article.

Lignite Coal Mining in North Dakota

Description of Stevens Brothers' Mine in McLean County, North Dakota, where Graders and Steam Shovel Work Together

IN the valley of the Missouri River near Garrison, McLean County, in nearly the center of the state of North Dakota, Stevens Brothers, contractors of St. Paul, Minnesota, have in operation a lignite coal mine.

The photograph which we reproduce herewith illustrating their No. 3 Mine is interesting in that one rarely finds in one such view a steam shovel, a fleet of elevating graders and a good portion of a hundred dump wagons all in one pit. And this is but one of three of the pits operated by this firm.

This deposit covers 640 acres and is situated 1½ miles south of Garrison, a town of somewhat over 700 inhabitants, on the Soo line.

The property lies in an exceptionally favorable manner for the method of operation they have adopted. The coal vein which is seven feet thick is covered with overburden 20 to 30 feet in depth. The property is cut through by the Garrison Creek Valley which offers a convenient pit for depositing the overburden. This overburden consists of 6 to 8 feet of surface gravel followed by three to five feet of yellow clay, below which is a one-foot vein of slack lignite, 3 to 4 feet of yellow shale, 2 feet of hard coal and 6 to 10 feet of blue shale.

The coal is an exceptionally hard, smooth and lustrous lignite, very similar to cannel coal both in texture and appearance.

The method of stripping the three pits is in general similar. In Mine No. 1 the first "swipe" was taken with a tower drag scraper outfit and the balance by the same methods followed in Mines No. 2 and No. 3.

In Mine No. 3 six elevating graders, four Westerns and two Strouds, do the general stripping over the entire surface of the mine at one time, plowing to a depth of one foot. These graders are hauled by six Holt 10-ton tractors and are served by from 60 to 100 Stroud dump wagons, ten or more wagons to a grader. The haul averages about a thousand feet.

The shovel is a 30-B Bucyrus with a one-yard dipper, mounted on caterpillars. This shovel is used for taking the heavy cuts and the sloping banks which are necessarily left by the grader operations. It averages about 800 cubic yards per day loaded into dump wagons. It is also used for mining the coal, about 50% of which is also mined by hand.

The stripping is dumped into the Valley of Garrison Creek, as stated, and into the old pit.

Mine No. 3, Stevens Brothers, lignite coal operators, ne shovel, six elevating graders a

The coal is taken about 1000 feet to the tipple where it passes over a shaker screen and is loaded into box cars by an Ottumwa box car loader. The capacity of the plant averages 500 to 600 cars per month. The coal finds a ready market in North and South Dakota and Minnesota.

W. A. Stevens is in charge of the stripping operations, H. O. Stevens of the mining operations, and the shovel is operated by Geo. Sommerfield.

Heavy Excavation in the Everglades

It will undoubtedly come as a surprise to any of our readers that during the first six months of this year over three million cubic yards of earth and rock were excavated in the Everglades draining operations in Florida. In order to give some slight idea as to the progress that is being made in bringing this hitherto waste land under cultivation by means of dragline excavators and dredges, we might state that we are informed that were this material placed in a cone-shaped pile, it would form a mound approximately a mile in circumference at the base and a mile high. 58,666,168 cubic yards of material have been dug in the construction of the canals since operations started, according to official statement.

This work has already opened up 419 miles of canals. The greatest progress, however, was made during the past six months during which 3,060,821 cubic yards were handled.

Hard-Boiled

Two negroes were lying behind a packing case on the docks at Brest taking the labor out of the alleged Labor Battalion. Said one boastfully:

"Boy, Ah comes f'um a tough breed. Mah ole man done cut his nails wif a ax an' brash his teef wif a file."

"Huh, ain't so tough. Mah ole man am a plumber an' twice a week he done shave hisself with a blow torch." —*American Legion Weekly.*

Chronology of Anthracite

Mr. H. H. Otto, Chief Mining Engineer of the Lehigh Coal & Navigation Company, has given us the following very interesting chronology of anthracite:

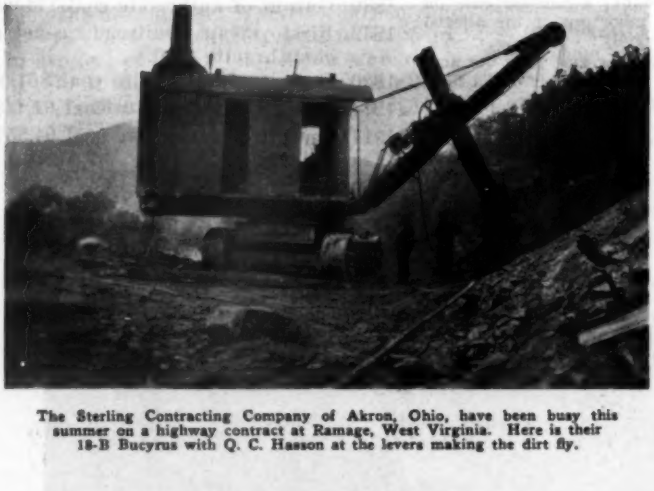
1762. Anthracite discovered in Wyoming Valley by Connecticut settlers.
1769. Anthracite first burned in a Smith forge.
1776. Anthracite first mined in America.
1791. Anthracite in large quantities discovered near Mauch Chunk by Philip Ginter, a hunter.
1792. First Anthracite coal company organized: Lehigh Coal Mine Company, Parent Company of The Lehigh Coal and Navigation Company.
1802. Two ark loads of coal shipped to Philadelphia by Lehigh Company; coal used to gravel walks.
1808. Judge Fell of Wilkes-Barre burned coal in his grate.
1814. Two ark loads of coal, 24 tons each, shipped to Philadelphia by Lehigh Company; used by Josiah White and Erskine Hazard in their mills.
1820. Lehigh Navigation Company and Lehigh Coal Mine Company merged into The Lehigh Coal and Navigation Company.
1820. Output of anthracite coal 365 tons.
1823. First anthracite coal shipped to New England by boat from Philadelphia.
1827. Mauch Chunk switch-back railway built.
1827. Canal on Lehigh River opened, Mauch Chunk to Easton.
1830. Output of anthracite coal 174,000 tons.
1832. First steam railroad constructed into anthracite field.
1840. Output of anthracite coal 864,000 tons.
1914. Output of anthracite coal 91,448,000 tons.
1917. Output of anthracite coal 94,557,702 tons.

712

South Dakota. It is not often that in one pit may be seen a steam and nearly one hundred dump wagons.

The contracting firm of W. H. Hausm Franci
early part of June on a contract inv about
for a warehouse site on Army Stre Texa
Osgood 18 and a new Bucyrus 20-B shovel.
with were taken at different times dur perio
shows the 20-B acting as a tractor in the oth
indicative of the tractive power of the machi
days at the beginning of the work, Hauser ha
himself, with J. Agnew as his firema

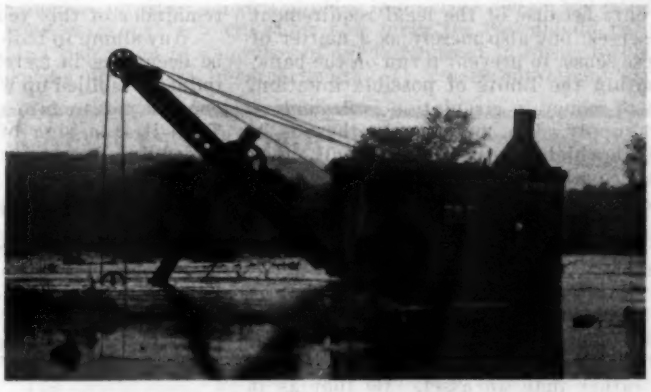
Canal work in the Soudan, nort frica.
Class-24 Bucyrus draglines, equ with an
ditch on the great Gazera Cotton Sc
four Class-24, one Class-29 and Clas
are in this wo



The Sterling Contracting Company of Akron, Ohio, have been busy this summer on a highway contract at Ramage, West Virginia. Here is their 18-B Bucyrus with Q. C. Hasson at the levers making the dirt fly.

Francisco, started operations during the
about 40,000 cubic yards of excavation
Texas Street, San Francisco, with an
shovel. The photographs published here-
period of operation. One of our views
the other shovel around the work, and is
machine. With the exception of a few
ner has handled the levers of the 20-B

frica. One of S. Pierson & Sons
with an oil burner, starting a new
ion Scheme. Three Class-175,
Class-14 Bucyrus draglines
his work.



Caught by a flood but still going. One of Winston & Company's 30-B Bucyrus shovels on the Scituate Dam project at Hope, Rhode Island.

The Excavating Engineer

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The Hobgoblin of the Gold Supply

According to London Punch, the trouble with America today is that we have most of the world's gold supply and no bananas.

Setting the bananas to one side for the moment, let us see how such a thing as the gold supply affects us.

Nearly all of the business of this country is done on credit. Nearly all of the so-called "money" in circulation is based on credit rather than on cash. This is shown by the fact that the outstanding loans of the banks of the country always exceed the deposits by about eight per cent.

But all of this circulating credit must have back of it a certain amount of real money (i. e., gold), not only because of the legal requirement for gold reserves, but also merely as a matter of good business sense, to prevent a run on the bank.

Thus, within the limits of possible inflation, the amount of money in circulation is dependent on the gold supply. The more money there is in circulation, the higher will prices be, all other things being equal. The more inflation there is the harder will it be to borrow, the more difficult will it be to float bond issues for construction work, and the more danger will there be of a financial crash.

All this is very simple in normal times, but at present, with most of the world's gold located in America, some economists claim that the old principles no longer hold and that gold has become a liability rather than an asset. Be that as it may, the fact remains that the money market is easy, and that loans will be more readily obtainable before they are less so. There is no undue spread between loans and deposits, thus indicating that we are as yet in no danger of inflation. And yet prices are not nearly as high as the large gold supply would lead us to expect. Consequently when you read learned discussions predicting calamity owing to our large gold supply (or lack of bananas, if you will) don't take it too seriously.

The Steadying Influence of Construction Work on the Financial Situation

The consensus of opinion of the leading prophets of the country last January was that either in October, 1923 or in January, 1924 wholesale prices would reach a peak of 171% of normal, that this would be followed within two or three months by a similar peak of retail prices, which in turn would be followed by a marked business depression.

Instead, what has really happened? The index of wholesale prices has maintained practically a constant level since the figure of 155 in June, 1922; has not gone above 159 (which can hardly be called a marked peak); and with its present trend cannot possibly reach 171 or even any peak at all either this month or even in January. So this prophecy of a panic goes a glimmering.

We may interpret the present situation as follows: Conditions this year are such as could perfectly well have produced a repetition of 1920-1921, but the financial interests of the country have learned their lesson, and by their conservatism and good judgment have warded off the evil.

A large share of the credit for this is due to the construction industry. Construction work more than anything else has given us the revival of the past year, and it is upon construction work mainly that we must depend for the maintenance of industrial activity and good times through the remainder of this year and beyond.

Any slump in building permits which may now be occurring is merely due to the fact that the industry is filled up with work and is conservative enough not to bite off more than it can chew. Thus it is a sign of prosperity rather than of impending depression.

The Conniption Variety

The customer at the second-hand clothing store was far from being satisfied, but, on the insistence of the proprietor that everything was all right, finally consented to take the suit.

"I'm not at all sure yet that I've a fit," he complained.

"You just go home and take a look at yourself in the glass," rejoined the proprietor, pocketing the money, "and you'll have one all right."

A Sensitive Sole

Colored Rookie: I'd lahk to have a new pair o' shoes, suh!

Sergeant: Are your shoes worn out?

"Worn out! Man, the bottoms of mah shoes are so thin ah can step on a dime and tell whether it's heads or tails." —*Panther.*

· FIELD NOTES ·

A Method of Releasing a Mired-Down Caterpillar Shovel

One of our readers has written us a description of a method he followed in getting a 55-ton caterpillar-mounted revolving shovel out of a mud hole. This method may be an old story to many of our readers, but its simplicity will undoubtedly commend it to many operators who find themselves in such a predicament.

Ordinarily a shovel has sufficient tractive power to pull itself out of ordinary sink holes with the help of planks, timber and brush, but occasionally the operator may, as this one did, find himself up to the top of his caterpillars in particularly tenacious mud. In this instance one of the caterpillars was all but buried.

Cribbing was placed alongside the low caterpillar. The shovel was swung around and by means of the power boom hoist, the boom was lowered on this cribbing, at the same time the dipper was thrust out as far as it would go.

This cribbing then acted as a fulcrum and the caterpillar was lifted up and planks and timber thrown underneath. More cribbing was added and the procedure repeated until the caterpillar was free. This fulcrum and lever arm action may be increased by loading the dipper.

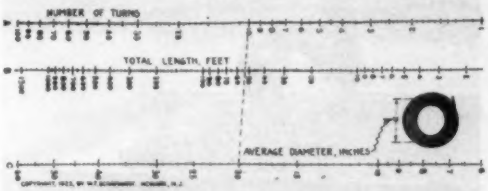
The method is simple and quick and may help an operator out of a bad place.

A Chart for Quickly Finding the Length of Rolls or Coils

By W. F. Schaphorst

Very often all of us have coils or rolls of some kind that are to be used for some purpose or other and we wonder how long the rope, wire, cable, hose, belt, etc., might be. We don't like to go to the bother of unrolling or uncoiling simply to obtain the approximate length. The important question usually is: "Is it long enough?"

The accompanying chart will be found useful for this very purpose for finding the length in feet of any ordinary roll or coil. All that is necessary is to count the number of turns in the coil roll and measure the "average" diameter as shown on the sketch in the chart. Then, lay a straightedge across the chart as indicated by the dotted line. Or, simply stretch a thread across. The answer is immediately found in column B.



For example, how many feet of rope in a coil the average diameter of which is 20 inches and the number of turns 10? Simply connect the 10, Column A, with the 20, Column C and the answer is shown in Column B as very close to 53 feet.

The range of the chart, it will be noted, is large enough to care for most of the conditions to be found in ordinary practice, ranging from one turn to 100 turns, and the diameters range from 6 inches to 60 inches.

The chart can be used backwards as well as forwards. For example, if it is desired to take along a coil of cable containing 300 feet and the workman wants to know how many turns to take, a straightedge laid across 300 on the middle scale will show how large the coil should be, and the number of turns required in order to obtain the desired length. It is very convenient and quick.

DEVICES YOU OUGHT · TO KNOW ABOUT ·

Grab Makes Record in Hard Wet Clay

W. S. Rendle & Son undertook a dredging job for the General Electric Company steel foundry in Everett, Massachusetts, that required digging in hard-packed blue clay. They rigged up a 1½-yard orange-peel bucket and went to work.

Results were discouraging. The orange-peel would not load its rated capacity, and the close-packed river bottom was especially severe on the working parts of the bucket. Then Roy Rendle, superintending the work, had an inspiration. He tells his experience in his own words:

"We have always used an orange-peel for dredging work, but it failed us on this job. The heavy clay was almost rock-hard, and too tough for the bucket to handle. We had had excellent results with Mead-Morrison Type 'W' clamshells in excavating foundations, and on the strength of past service I decided to give it a try on this job. So we swung a 1½-yard Type 'W' on the boom and went at it.

"Anybody who has had experience digging solid-packed blue clay will appreciate these figures. The first day we moved 600 yards from the

river bottom to the scow, in 7 working hours. The second day we speeded up the work dredging 640 yards in 6½ hours. For several hours we averaged a bucket-load every 40 seconds.

"It's a surprise to me, the way this 1½-yard bucket often scoops up over 2 yards of clay at a time. It empties quickly. The wet clay sticks like glue, but the downward pressure of the rocker

1½-Yard Type "W" Mead-Morrison Clamshell Bucket Digging Hard-Packed Blue Clay, Everett, Massachusetts

arm in opening forces the clay out. Some of the lumps that drop into the scow are perfect molds of the bucket, and show the marks of the cast steel teeth and the cutting edges of the lips.

"The Type 'W' leaves an orange-peel out of sight when it comes to dredging in this tough material. It carries far more than its rated capacity, makes more trips per hour, loads and unloads in a jiffy, and clears a smooth, even path along the bottom.

"There's one feature of this bucket that impresses me more than anything else, and that is its remarkable closing power. The jaws bite down into that hard-packed clay and close in on a full load every trip."

For further information concerning this bucket write the Mead-Morrison Company, 725 Prescott Street, Boston, Massachusetts. The postal enclosed in this issue may be found convenient for this purpose.

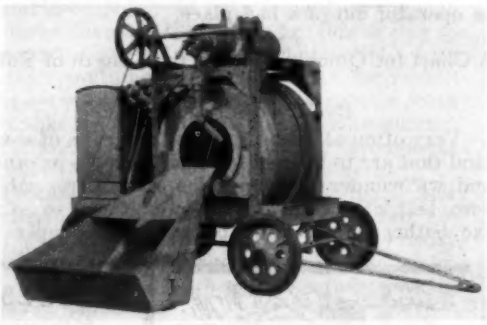
New Rex Mixers Announced by Chain Belt Company

Two new models of Rex Mixers have been announced by the Chain Belt Company of Milwaukee, a half-bag mixer to be known as the Rex 234-S, and a one-bag machine, the Rex 237-S. Both are the so-called low-charging types and can be equipped with either a hinged platform or charging skip.

During the past three years most of the development work on concrete machinery has been largely confined to pavers, and remarkable speed in the handling of material has been the result. In the new Rex Mixer models the Chain Belt Company is bringing to the portable building mixer field the speed and low mixing cost of the Rex Paver.

In the drum the mixing blades and buckets have been specially arranged to decrease the time required for discharging the batch, no matter what mixing proportions are used. The opposite side discharge control is of an entirely new design to make the operation of the chute easier. The power charging skip has been constructed so as to reduce the time of charging the drum.

By mounting the countershaft up out of the dirt line and using a vertical engine, the new Rex models have been made very compact and sturdy. The shorter wheel base makes them more readily portable, especially in close quarters. Truck construction is distinctive in design, the front axle being built up of cold-rolled shafting and trussed channels to give it greater rigidity. An adjustable malleable jack placed on the charging end of the axle gives the mixer four-point suspension while mixing concrete.



New Rex One-Bag Mixer

The superstructure is built of heavy steel angles which are gusseted in both directions. The main countershaft is mounted on self-aligning bearings high up on the machine where it is readily accessible at all times. An asbestos disc type of clutch which has a greater gripping area and is smoother in operation has superseded the old wood block type of clutch. Self-oiling bushings are provided in the drum rollers which are of malleable iron construction.

The Rex 237-S is equipped with an 8 H. P. 2-cylinder vertical, hopper-cooled Le Roi Engine having a high tension magneto, an automobile

type carburetor and a throttling governor. On the Rex 234-S a 4 H. P. vertical gasoline engine is used.

Either machine can be equipped with a hinged low-charging platform which folds up while traveling, or a power charging skip. Rubber-tired disc wheels or built-up steel wheels are optional equipment. The disc wheels are equipped with phosphor bronze bushings to allow faster traveling over city streets.

For further information concerning this mixer write the Chain Belt Company, Milwaukee, Wisconsin. The postal enclosed in this issue may be found convenient for this purpose.

SHOTS FROM THE · FIRING LINE ·

Central States Notes

BY M. J. WOODHULL AND MARK GAYLORD

The Dix River dam job near Burgin, Kentucky, is taking shape nicely. Geo. B. Howson is resident engineer, and C. E. Collins is in charge for the L. E. Meyers Co. They have the camp well along and work is started on the power house. The spur track is in as far as the camp, and equipment and material is coming in rapidly. Two new Bucyrus 20-B's and an Erie are on the job working now, and one of their new Bucyrus 78-C's is there ready to go down the hill as soon as they get the track in.

The States Corporation's shovels at Central City, Kentucky, are now mounted on caterpillars. Everybody on the job is boosting them as the only mounting. The first day the Bucyrus 103-C ran on them she dodged a slide and Mr. Terwilleger, the superintendent, declared the caterpillars paid for themselves by that one move.

The Wisconsin State Levee Commission received bids at 3:00 p. m., September 28, 1923, at the office of H. V. Tennant, engineer, Portage, Wisconsin, for furnishing material and labor for enlarging, strengthening, and protecting a portion of the Portage Levee System. The work includes some 12,000 cubic yards of earth fill, 6,000 cubic yards of brush mattress shore protection, 5,000 cubic yards of stone in place.

The Empire Construction Company are apparently operating two shifts at their work in Des Moines, Iowa. J. C. Montis and E. E. Ludwig are operating an Erie for this company, while J. A. Logan and Warren Johnson are firing the shovel.

C. C. Quinnett is operating and Frank Gordon is firing an Erie for the Arthur H. Newman Company at Des Moines, Iowa.

Ernest Smith is operating and Roy McMurray is making the smoke on a Bucyrus 18-B owned by John Italiano at Dunreath, Iowa.

News has come to us that S. W. Turbett is operating and Ernest Baldwin is firing a Thew for the Longerbone Construction Company at Des Moines, Iowa.

A. W. Fields is operating and Harold Hook is firing a Thew for Frank Cram & Sons at Des Moines, Iowa.

Chas. Vanlaningham is pulling the levers on an Erie for the Sugarment Construction Company at Des Moines, Iowa. Guy Wood is firing.

John Friel is running a Thew for the Des Moines Asphalt Paving Company at Des Moines, Iowa, while D. W. Ford is firing.

Callahan-Walker Construction Company of Omaha are working on the following at this time: 30-B Bucyrus on the Wyoming North and South Railroad at Buffalo Gap, Wyoming, loading La Plante-Choate 6-yard wagons; putting in 19 miles of double track for the Chicago, T. H. & S. E. Railroad south of Chicago, and have one 2-yard and one 1-yard dragline on this work; operating a 2½-yard Monighan on a 600,000-yard ditch job at Skidmore, Missouri.

Fred Crane & Co. of Omaha have started work on their drainage contract at Sidney, Iowa.

Fred Crane & Co. will finish up their contract at Council Bluffs, Iowa, in a short time and expect to move their equipment to Sidney, Iowa.

Thomson Co. of Omaha have a contract to strip a clay deposit for The Flint Brick Co. of Des Moines. They have taken one of their shovels from Omaha to this work.

Pollard-Campbell of Omaha have some floating dredges idle for which they would be glad to find work.

Northwestern States Notes

BY A. B. HANCE, PORTLAND, OREGON

The State Bureau of Boise, Idaho, filed papers recently with the United States Bureau of Public Roads at Ogen for another project on the North and South Highway. The project, which is known as Federal Aid Project No. 74, is located in Latah County. It will consist of the grading and surfacing of 5.91 miles of highway between Potlatch and Harvard. It is estimated the work will cost approximately $88,000.

The work on the construction of the Shea Hill Cut-off on the Lebanon-Cascadia Road at Lebanon is nearing completion, and by the end of the month this much-dreaded portion of the highway will be permanently eliminated by a fine stretch of scenic road. A portion of this new road is cut out of a solid wall of rock and overlooks a narrow, deep gorge, through which the waters of the South Santiam River flow several hundred feet below.

The widening of the Columbia River Highway between Astoria and Svenson was started August 17th by John Slotte & Company, when their big steam shovel began cutting away the strip bank at the point where the slide occurred last year and the pavement was broken. Practically the entire roadbed is to be widened and it is expected that next season a new pavement will be laid.

Bids were opened September 11th at Olympia by the Washington State Highway Department for the following improvements in various parts of the state:

Constructing steel truss bridge with concrete approaches across the Cedar River in Renton on the Sunset Highway in King County.

Constructing steel truss bridge with concrete approaches across Hamilton Creek on the North Bank Highway between Rands and Greenleaf in Skamania County, Washington.

Grading, draining and surfacing with crushed rock about .99 miles of the Inland Empire Highway, Central Ferry Bridge approaches in Whitman and Garfield Counties.

Constructing two reinforced concrete T-beam bridges on the Ocean Beach Highway in the vicinity of McCormick, in Lewis County, total length of bridges 221 feet.

Surfacing with crushed rock or crushed gravel about 11.6 miles of the Central Washington Highway between Pasco and Eltopia in Franklin County.

Paving of one mile of Ocean Beach Highway from Kelso west in Cowlitz County.

The resurfacing of five miles of the Sunset Highway between Cle Elum and Easton from the Little Creek Bridge east in Kittitas County.

The contract for the grading of the right-of-way for several miles of the Long-Bell Lumber Company logging railway from the terminus of the Longview, Portland & Northern Railway at Ryderwood into the timber, has been awarded to Grant, Smith & Company.

The Interstate Commerce Commission on August 21st issued a certificate of public convenience and necessity to the Central Pacific Railway Company, and construction of the Eugene-Klamath Falls line of the Southern Pacific, which has been known as the Natron Cutoff, has been started, with completion promised the Interstate Commerce Commission by July 1, 1926. The gap to be built is about 120 miles in length.

At least two years will be required to complete the cutoff and the construction cost will amount to $15,000,000. Three engineering parties have been in the field all summer making final location surveys for the railway with a view to preparing data for information of construction contractors who have been invited to submit bids for the work.

There is a probability that one or more construction contracts will be awarded for the work on the northerly end of the cutoff, along the headwaters of the middle fork of the Willamette River. If this is done there will be exceptional activity in forwarding construction equipment and supplies and materials from Eugene and Springfield. Klamath Falls, of course, will be an outfitting point for the railroad work from that end of the cutoff. Carrying through of the Southern Pacific's program to separate its tracks through East Portland from grade crossings, involving an outlay of several million dollars in purchase of property and construction, also will be hastened.

Completion of the Dalles-California Highway at the earliest possible time is favored, not only by Bend and Klamath Falls, but by Grants Pass, Medford, Jacksonville and Ashland.

As a direct result of a recent visit to the Columbia of the members of the House Naval Affairs Committee, the County Court awarded a contract to A. C. Dunlap for clearing and grading a road leading from the main Columbia Highway to the naval base site. The amount of the contract was $3056. This does not include the construction of an overhead crossing at the railway right-of-way, the cost of which will probably be in the neighborhood of $1200.

Contract for overhauling the Porter-Oakville Road was let at Montesano recently by the Grays Harbor County Commissioners to J. L. Quinn, Satsop, Winnipeg, for $29,138.40. The work will include overhauling 6.4 miles of road, removing slides estimated at about 20,000 yards of earth, and placing 7500 yards of gravel.

With 47 miles of highway construction in Washington, through the heaviest timber and hardest "going" in the state, remaining to close the gap in the west portion of the state, contractors going broke one after another on the adjoining stretches until it is difficult to secure bids, it is now the plan and desire of the State Highway Department to first put through the clearing of the right-of-way for all, for the greater portion of the distance, before attempting road construction. With a 60-foot right-of-way cleared, bids for construction would be more freely offered.

The State Highway Commission of Montana has awarded to J. N. Brown & Company of Bozeman contracts for the construction of two stretches of road in Gallatin County. One was for two-and-a-half miles on the Salesville-North Road at a cost of $24,581.52, and the other was for three-and-a-half miles of the Huggine-Lane Road at a cost of $24,606.48. Both are federal aid projects.

The Bureau of Reclamation through their District Engineer at Klamath Falls is asking for bids on the Gerber Dam located about 35 miles southeast of Klamath Falls. Bids will be opened at Klamath Falls on September 12th. The Dam is about 90 feet high, 430 feet long and requires 10,000 cubic yards of excavation and 9500 cubic yards of concrete.

Work on the Elk River-Dent Highway will begin shortly. The contract was let to Chas. Johnson, who submitted a bid of $30.00 a 100-foot station. Two-and-a-half miles will connect with the Elk River-Boville Highway, a connecting link with the North and South Highway.

Idaho's State Department of Public Works will begin the immediate improvement of the 23 miles of "bad road" on the North and South Highway north of Round Valley. The state has allotted $20,000 for this work and hopes to receive financial aid from Idaho County in the amount of $2000 or $3000. The money will be spent building "sight-to-sight" turnouts, blasting or otherwise removing "high centers," and eliminating steep and slippery grades.

Only one section of the highway down the Umpqua River to Reedsport, 3.6 miles in length, remains to be put under contract. That section lies within a national forest, and government aid will be secured. The county and government are now each appropriating $55,000 more to finish the work. It is possible that the road will be open by the first of August next year, if the heavy rock work is done this winter. The specifications call for the excavation of 4000 yards of earth, 53,900 yards of rock and hardpan, and 81,000 yards of solid rock. A 220-foot span bridge must be built and an 800-foot bridge will be needed at Scottsburg.

The Idaho State Department of Public Works will soon call for construction bids for a road between Harpster and Stites, a bond issue of $35,000 having been voted some years ago by the Clearwater Highway District for the purpose, in co-operation with the state.

Grading between Kirk and Crescent on the new Eugene-Klamath Falls line of the Southern Pacific Railroad will be completed during the winter. John Hamp-

shire of Grants Pass, Oregon, has the contract for the 31 miles. Mr. Hampshire has already started equipment toward Kirk.

Pacific Coast Notes

BY P. H. BIECKHEAD, SAN FRANCISCO, CALIFORNIA

Contract has been awarded to the United Dredging Co., Central Building, Los Angeles, who bid $.244 per cubic yard, total $24,400 for 100,000 yards dredging in front of wharves, work being for the Los Angeles Board of Harbor Commissioners. The Ross Construction Company, Los Angeles, who bid $.347 per cubic yard, total $34,125, was the only other bidder.

Contract has been awarded to the Cashion-Caldwell Construction Co., Phoenix, Arizona, who bid $61,950 for grading and gravel surfacing portion of the Phoenix-Yuma Highway. Kisselburg, Schmidt & Hitchcock, who bid $82,821, was the only other bidder.

Plans and surveys are now being prepared by F. Bonstell, engineer for United States Reclamation Service, for the construction of the Spanish Springs Reservoir, Nevada, and a ditch line from the Truckee River to the site of the reservoir. Total estimated cost of the project is $4,000,000. It is proposed to start construction the first part of 1924.

The proposal to form the Roseville Irrigation District, to embrace 8,700 acres in Placer County, California, was defeated at an election in Roseville. The estimated cost of irrigating the land was $60.00 per acre.

An election on the formation of the Kern River Water Storage District, recently approved by the State Engineering Department, will be held within a few weeks at Bakersfield, California. This District will include about 250,000 acres of land in Kern County, now partially irrigated by the Kern River and by pumping plants. It is proposed to acquire existing canals and irrigating facilities, and to construct a dam on the Kern River. New canals, etc., cost $15,000,000.

Low bids have been received as follows for 327,000 cubic yards of dredging in Petaluma Creek, California, by the United States Engineers Office, Custom House, San Francisco: Section "A", San Francisco Bridge Co., Nevada Bank Building, San Francisco, $.096 per yard; Section "B", American Dredging Co., 255 California Street, San Francisco, $.32 per yard.

The following contracts have been awarded by the Pacific Portland Cement Co., Pacific Building, San Francisco, in connection with the construction of a new cement manufacturing plant at Redwood City.

Dredging: Contract awarded to the San Francisco Bridge Co., Nevada Bank Building, San Francisco, for the removal of an island in front of Redwood Creek, and dredging the basin preparatory to the construction of accommodations for shipping.

Railroad: Contract awarded to Palmer & McBryde, Cunard Building, San Francisco, for the construction of new wagon roads from the end of Chestnut Street to the present terminal opposite the Grecco Salt Works. Contract also included the reconstruction of the railroad, laying new rails, and constructing an oiled roadway on each side of the railway.

Mr. S. J. Norris, Oroville, has been appointed consulting engineer for the Honcut-Yuba Irrigation District in Butte and Yuba Counties, and will prepare a report on the engineering structures that will be required to irrigate the district.

Bids have been received from the following concerns by the United States Engineering Office, Custom House Building, San Francisco, for 327,000 cubic yards of dredging in Oakland Harbor: American Dredging Co., 255 California Street, San Francisco, $.232 per yard; San Francisco Bridge Co., San Francisco, $.258 per yard. The work involves 775,000 cubic yards of dredging.

Tentative plans and specifications have been completed by Chief Harbor Engineer, F. G. White, Ferry Building, San Francisco, for the construction of a subway at the Embarcadero and Market Street, San Francisco. Plans call for the construction of a subway 982 feet in length, 23 feet wide and 15 feet deep at the deepest point with a grade of 3¾%, to be constructed of reinforced concrete and structural steel. Total estimated cost $425,000. It is proposed that the Harbor Commission finance one-half the cost of construction; the City of San Francisco and the Municipal Railway Company to finance the balance. Bids for the construction of the subway will be called for by the Harbor Commissioners as soon as the financing has been settled.

A. N. Day, connected with the Southern Australian Railways, recently passed through San Francisco where he was interested in inspecting the railway systems of California.

Martin O'Toole has returned from Hawaii and is at the present time operating a Bucyrus 30-B Diesel shovel for K. L. Goulter at Port Angeles, Washington.

G. T. White is operating a 30-B Bucyrus for the Western Construction Company at Hollywood, California.

Jack Eden is craning a shovel for Sharp & Fellows in Los Angeles, California.

Southern States News

BY C. N. BALLENTINE AND W. W. WHORLEY, BIRMINGHAM, ALABAMA

F. G. Bradshaw, who has been on highway construction in North Carolina, was a recent visitor in Birmingham. Mr. Bradshaw is now operating a 20-B Bucyrus for Phillips & Company of Birmingham on their St. Clair County highway job.

Jim Wildrick is stripping clay with a Marion-21 for the H. C. Spinks Clay Company near Puryear, Tennessee. Rickard Carothers is in general charge of operations.

M. A. Bunnell is making the dirt fly with a 20-B Bucyrus dragline on the W. J. Conners highway project near Canal Point, Florida.

Jack Ratcliff is handling a Bucyrus 20-B for the Johnson Porter Clay Company near McKenzie, Tennessee.

W. J. Mallett is foreman in charge of Bucyrus tower excavator machine C-14 at Wayside, Mississippi. Horace Houser is handling levers and W. R. Saunders is on deck at the head tower. E. B. Farr is cutting down the old levee with a Class-9½ Bucyrus.

Two large draglines are at work enlarging the Mississippi River Levee system near Lake Providence, Louisiana. Bucyrus Class-230 dragline B-7 is in charge of Mr. J. W. Doiron and is being operated double shift by E. G. Turnipseed and John W. McCoy. Dixie Belsar is handling a Class-9½ Bucyrus.

O. A. Blake is in charge of the Bucyrus Class-180 Dragline B-11. Eddie E. Shamp and Joseph DeLage

are handling the big dragline and Frank McCoy and Daniel Pollard the Class-9½.

Little & Dean of Memphis, Tennessee, were recently awarded a nice road job in Benton County, Tennessee.

Bids on several road jobs at Montgomery, Alabama, were opened on September 11th.

Laslie Bros., of Chattanooga, Tennessee, were awarded a short section of road in Etowah County.

In Wilcox County, J. W. Gwyn of Birmingham was low bidder for the surfacing of 2½ miles of the Camden-Greenville Road, his bid being $105,850.50.

S. C. Taylor of Wilsonville was low bidder for the construction of six miles of road between Russellville and Phil Campbell, his bid being $81,990.60.

W. C. McCoy of LaFayette was low bidder for the construction of 20 miles of road between Haleyville and Double Springs. His bid was $166,532.34.

The best bid on the construction of 10.21 miles of road from the Etowah county line to Center in Cherokee County was submitted by Stanley & Singer of LaFayette, who agreed to construct the road for $99,191.90.

St. Louis Items

BY A. B. KOENIG

L. B. Fugett of the Kansas City Bridge Co. was with us a day. They are at work on a couple of bridge jobs on the Wabash Railroad, one in Illinois and one in Indiana. Alex Maitland, president of this company, is in England at the present time. He is expected back next month.

W. H. Wignoll will finish his team work near Wilcox, Missouri, in a couple of weeks. He wants another grading job suitable for a 10-team outfit.

Alterations in the plans for the foundation of the Fourteenth Street Viaduct here will save the city $43,998, according to L. R. Bowen, engineer of bridges and buildings. Under the two methods of construction, based on the cubic-foot cost, the piling was to have been driven to bedrock for all piers. Bowen asked Contractor Frank A. Stiers to substitute concrete shafts where possible, but where the is quicksand or semi-quicksand to sink piling. Stiers consented to the substitution. Bowen said if piling had been used for all piers the cost would have been $110,341, while under the plan agreed on the cost will be $66,342. Bids for the contract were received June 5. Of four bidders, Stiers was lowest with an offer of $468,943.90, while Higgins-Wall-Dyer was second with $495,585.05. Each bidder bid on four classes of foundation work, based on the cubic and the lineal foot. Award of contract to Stiers was made June 20, and he has been at work assembling his plant since July 10. He has eighteen months in which to complete the contract. Later, when the superstructure nears completion, bids will be awarded for paving, hand rails and trolley poles, which are not included in the general contract. Of the contract price the Missouri Pacific and Frisco Railroads are to pay $300,000 and the United Railways $25,000. The city will pay the remainder.

Frazier-Davis Construction Co., 1170 Arcade Building, St. Louis, Missouri, have 43,000 yards of fresno work on State highway in Missouri to let.

The Division of Highways at Springfield, Illinois, opened bids on August 20th for 30 miles of pavement and six bridges. The low bidders on the different sections follow:

Paving: Route 2, Section 64, Woodford County, Keokuk Quarry & Construction Co., Keokuk, Iowa, $124,861.54; Route 2, Section 65, Woodford County, Keokuk Quarry & Construction Co., Keokuk, Iowa, $133,794.36; Route 8, Section 35, Tazewell and Woodford Counties, Keokuk Quarry & Construction Co., Keokuk, Iowa, $122,237.67; Route 16, Sections 6 and 7, Coles County, combination bid, Etchison & Patterson, Casey, Illinois, $184,800.

Bridges: Route 16, Section 38, Coles County, Acme Engineering Company, Decatur, Illinois, $30,419.60; Route 2, Sections 64-b, 64-c and 65b, combination bid, Woodford County, F. E. Marsh & Co., Des Moines, Iowa, $22,000.

M. Edward McGuire, 4010 College Avenue, Indianapolis, Indiana, has 225,000 yards of elevating grader, wheeler and fresno work to sublet on State Highway between Pana and Vandalia, Illinois. He is moving his own outfit on a part of it.

J. H. Hewett has 5 miles of state highway out of Fredericktown, Missouri, to sublet. Fredericktown, Missouri, will catch him.

New bids on the construction of a culvert over the River Des Peres at Delmar Boulevard and the Wabash tracks will be received by the Board of Public Service, St. Louis, on September 25th. The contract for the work was awarded to the Fruin-Colnon Company July 28 last, but, because of the existing controversy between the city and the Wabash Railroad over the Delmar grade crossing, the Company refused to sign the contract and go ahead with the work.

C. T. Oglesby, 49 Union Avenue, Memphis, Tennessee, has 100,000 yards of side borrow on State road in Southern Missouri to sublet in quantities to suit outfits. He has also a pile-driving job, 8 bridges and some concrete work on the Kennett-Poplar Bluff, Missouri, State Highway to let.

Low bids for the construction of 72.51 miles of hard roads in Illinois received August 29th by the State Division of Highways total $1,522,767, or an average of $21,000 a mile without cement. The average is believed to be the lowest of the year. The apparent low bidders for road, bridge and grading work at the letting follow:

Roads: Route 1, Section 19, Crawford County, Charles W. Clark Company, Terre Haute, Indiana, $120,156.93; Route 2, Section 56, McLean County, Edward J. Eiff, Quincy, Illinois, $92,144.15; Route 2, Sections 56, 62 and 62-b, combination bid, L. S. Kuhn, Bloomington, Illinois, $254,500; Route 3, Sections 69 and 70, combination bid, Randolph-Monroe Counties, Harrison Engineering & Construction Co., Wichita, Kansas, $268,000; Route 12, Section 15, Marion County, W. C. Johnson, Belleville, Illinois, $99,980.65; Route 12, Sections 27 and 28, combination bid, Clinton and St. Clair Counties, Hoefken Bros., $181,433.25; Route 13, Section 11, Gallatin County, French Construction Co., Fairfield, Illinois, $153,079.73; Route 16, Section 19, Montgomery County, Young & Hall, Nokomis, Illinois, $193,919.26; Route 21, Section 3, Lake County, Pickers Construction Co., Sioux City, Iowa, $149,308.75; Route 31, Section 22, Fulton County, Young & Hall, Nokomis, Illinois, $111,211.54.

Grading: Route 1, Section 28a, White County, James Austin, Kirkwood, Missouri, $73,575.14; Route 2, Section 63a, McLean-Woodford Counties, I. D. Lain, Bloomington, Illinois, $17,858.30; Route 16, Section 21a, Montgomery County, Byers-Wilson Construction Co., Manchester, Iowa, $114,906.68; Route 34, Section 1a, Saline County, Cameron, Joyce & Co., Keokuk, Iowa, $46,300.20;

Route 34, Section 2a, Saline County, Cameron, Joyce & Co., Keokuk, Iowa, $50,887.15; Route 34, Section 4a, Hardin County, no bid; Route 34, Section 5a, Hardin County, A. M. Hoolan, St. Louis, Missouri, $185,129.86.

Bridges: Route 14, Section 7b and 8b, Franklin and Hamilton Counties, Frazier-Davis Construction Co., St. Louis, Missouri, $64,800; Route 33, Section 4b, Jasper County, V. O. Connor, Newton, Illinois, $53,579.30.

M. L. Windham has a shovel outfit at work on the Illinois Central Railroad south of East St. Louis.

Columbus S. Jones, the boss station man, started on several new jobs of bank widening on the Missouri, Kansas & Texas Railroad in Texas. He is shipping his men from St. Louis.

Albert Hood is building some bungalows and grading property at Independence, Missouri. Mr. Hood would like to get hold of a grading job suitable for a 15-team outfit.

P. J. Hannan Co. started on their shovel job on the Wabash Railroad near Detroit with Pete Hannan in charge.

J. A. Wuellner & Son of Alton are building a new depot and station for the Missouri Pacific Railroad at Washington, Missouri.

Walter Lonergan came in for a carload of labor for his new state road work near Varne, Illinois, and went back happy.

Contractors when in want of work or labor for their outfits write or wire Koenig Labor Agency, 612 Walnut Street, St. Louis, Missouri, or 501 Delaware Street, Kansas City, Missouri.

Canada

Montreal and Vicinity

BY J. M. WARD

Louis A. Ott & Company have just been awarded a $100,000 sewer contract from the town of LaSalle, near Montreal. They will use their Bucyrus 20-B high lift shovel for this work.

Tenders closed September 15th for a $300,000 cut-off on the Canadian National Railways, at Donnacona, Quebec.

The Foundation Company of Montreal has secured contract from the Southern Canada Power Company for a 30,000 H. P. hydro-electric development at Heming Falls, Quebec.

The Back River Power Company, 35 Common Street, Montreal, will call for tenders about the middle of October for their Power Development at Riviere des Prairies, Quebec, near Montreal. This is a $7,000,000 development. The engineers are T. Pringle & Sons, Limited, 20 St. Nicholas Street, Montreal. This development has been talked of for some time, but now final arrangements have been made with the city of Montreal regarding taking care of the sewerage lines, and work is to be proceeded with as promptly as possible.

Toronto and Vicinity

BY C. E. ENGLAND AND N. DE WIND

Messrs. P. Licastro & Co., Dufferin Street, Toronto, have been awarded several sewer contracts in the city.

Mr. W. E. Taylor, 22 Falcon Street, has also several important city sewers under construction.

The Goldie Construction Co., Ltd., Church Street, Toronto, are making good progress with the construction of Governor's Bridge—a reinforced concrete design which will connect Astley Street with new subdivisions of the city beyond the ravine.

Johnson Bros., of Brantford, Ontario, are making good progress with the contract for Bloor Street Bridge, which is one of the largest viaducts on a main artery of the city.

The Port Arthur Construction Co. are busy on the new bridge over the river at Brantford, Ontario, and have overcome the worst of the difficulties which the job presented. Considerable sheet-piling work was found necessary. Mr. R. K. Russel, President of the Company, gives this job a good deal of his time.

F. F. Fry, Ltd., Scott Street, Toronto, are rushing through a considerable sewer contract in Owen Sound, Ontario, amounting to over $50,000. We recently had the pleasure of meeting their genial superintendent, Mr. L. Carroll, on the job. It is understood that the city will allot them some additional work while there.

We are informed that Sir Wm. Arrol & Co., Ltd., have arranged to subcontract some of the work on their big Hollinger Gold Mine contract for hydro development on the Abitibi River. It is understood that Messrs. R. B. Stewart & Co., and French & Co. of Montreal, are subcontracting the excavating and concrete work respectively.

The Hon. G. S. Henry, Minister of Public Works under the new Government in Ontario, is taking a very active interest in the highway development program, and for some time has been making trips of inspection throughout the southern part of the Province, accompanied by W. A. McLean, Deputy Minister, and Geo. Hogarth, Chief Engineer. Contractors, as well as the public, are interested to hear if any considerable change in the program will be made for 1924.

We recently had the pleasure of visiting the Webster Construction Co., who are just finishing up a considerable grading job on the Provincial highways, south of Caledonia. This was principally cutting down grades and widening the roadbed into new 86-foot right-of-way. This company did a large amount of the work with Fresno Scrapers—a method which is becoming more and more popular amongst Ontario grading contractors. R. S. Ronson is foreman on this job.

Messrs. Cameron & Hutt are making good progress on their contract for grading in the section of the Provincial highways at Delhi, Ontario. One of the big hills to be cut through is handled with a steam shovel, cars, and track. They have several Western 1½-yard, 24-inch gauge, dump cars on this job.

Mr. George McNamee, Secretary of the Canadian Good Roads Association, was a recent visitor from Montreal in Toronto. Our guess is that he is thinking up another convention.

A meeting of the North Toronto Taxpayers Association recently passed a resolution asking the Toronto Department of Public Works for fuller details of the proposed sewer system for the northern part of Toronto estimated at $11,000,000. We all want to hear more about it.

It is reported that the Chicago Drainage District offers to pay for the controlling works to hold up compensating water in the Great Lakes to balance the water diverted by their drainage canal. The contractors and machinery men will have a "Welcome" Committee to meet them any time they come across the line to discuss building here. Our motto is "Come On." What is Chicago's — ("I will")?

Winnipeg and Vicinity

BY F. X. AMOSS

The Manitoba Government have awarded two contracts for drainage work — one to the Western Drainage Company and one to the Lount Engineering Company.

That Western Canada is yearly becoming a greater factor in the railway world is evidenced by the fact that on September 10th, for the first time, the Canadian Pacific Railway directors held their board meeting in Winnipeg.

To better serve the needs of the western public, Sir Henry Thornton, President of the Canadian National Railways, has established a permanent office at the Union Station, Winnipeg.

The latest authoritative estimate of the wheat crop in Western Provinces is approximately 450 million bushels, which indicates a bigger crop than has ever before been produced.

Mr. A. Craig, well known among the steam shovel engineers on the Canadian Pacific, is spending a few days in Winnipeg. Mrs. Craig is leaving Ireland to join him in the very near future, which is the reason "Alec" is wearing such a happy smile.

Vancouver and Vicinity

A trans-provincial highway, extending from Vancouver right across British Columbia and through the mountainous region of the Rockies to Alberta, will be an accomplished fact by the end of next year under the present plans of the provincial government, it is announced by Hon. W. H. Sutherland, Minister of Public Works.

Announcement of the award of one of the most important new road-making contracts placed for some months was made by Hon. W. H. Sutherland, Minister of Public Works, yesterday, just prior to his return to Victoria after a short inspection of South Vancouver roads and other public works projects in the vicinity of Vancouver. The contract in question is for the new Golden-Yoho Park Highway, which is to form an important and long-desired link in the road system of the interior. This work has been awarded to the well-known contracting firm of W. P. Tierney & Company, of Vancouver, at their tender figure of approximately $45,000.

Two important sewer construction projects were formally approved at the monthly meeting of the Vancouver and District Joint Sewerage Board last week. One of these comprises an extension of the Collingwood trunk sewer estimated to cost in the neighborhood of $18,000. The other project is the Balaclave sewer outfall, which has been estimated to cost $15,000.

Vancouver and Seattle are now linked by a through paved highway. The last link of the Pacific Highway was officially opened on September 3rd.

Four miles of additional surfacing on the Grand-Forks-Rossland Highway has been authorized by the Provincial Department of Public Works at Victoria. It it announced that the contract for this work has been awarded to D. McPherson & Co., of Grand Forks.

Arrangements are being made by Canadian Pacific Railroad divisional officials to put on a couple of work trains next week to continue the extensive filling in operations on the long, high trestle at Kootenay Landing and add some more thousands of cubic yards of earth to the many already deposited there in the big fill.

To aid in transportation to their mines and property at Alberta Canyon, the Waverly Mines Company are calling for bids for repairs to roads and bridges leading to that district.

Included in the latest list of road appropriations authorized by the Provincial Executive for the Public Works Department is an item of $6,300 for improvements to the transcontinental highway near Fernie.

Work has been commenced by the A. B. Palmer Company of Vancouver on the big dyking contract which was recently awarded them at South Westminster. Brush is now being cut on the line of the ditch and hauled to points where it is utilized as foundation.

Two berths at the new Ballantyne Pier on the west side will be ready for use the end of September and the other berths on the east side will be in operation by the first of November.

Having passed its first or "turning over" test in an entirely satisfactory manner, the huge concentrator and ore mill at the Sullivan mine, Kimberly, was given its trial this week and is to start active operation next Monday. The first ore is to be put through then and with the railway and rolling stock ready to operate practically at capacity now, a big increase in ore returns is expected from this district.

REVIEW OF BOOKS and CATALOGS

We shall be glad to review, in this column, such books and catalogs as are sent to us.

An illustrated bulletin descriptive of the NEW BUCYRUS ¾-YARD GASOLINE SHOVEL has recently been published by the *Bucyrus Company, South Milwaukee, Wisconsin.* The bulletin describes in detail the mechanical features of this machine and illustrates its various outstanding features, such as its ease of operation, patented rope drive, its simple design, and strength of construction, together with its many other outstanding advantages. This bulletin may be obtained by writing to the above company and asking for Bulletin F-201-S.

The Gray Tractor Co., Minneapolis, Minnesota, has recently issued a two-color, beautifully illustrated broadside describing their 50 H. P. 8-ton Tractor Roller equipped with scarifier and grader. This may be obtained by writing to the above company. Use postal enclosed in this issue.

The Blaw-Knox Company has recently published their new bulletin No. 812 entitled BLAW-KNOX SINGLE-LINE BUCKETS. As this pamphlet has just come off the press, it contains the latest data on that company's line of various types of buckets and should, therefore, be of value to those interested in this type of equipment. It is generously illustrated with many interesting and striking photographs. Bulletin No. 812 may be obtained by writing to the above company at Pittsburgh, Pennsylvania. Use the postal enclosed in this issue.

UMI

To Have Swimming Pool, Golf Links, and All Things Necessary to Make It Attractive for Tourists

An American business man in Port-au-Prince, Haiti, whose name may be obtained from the Specialties Division of the Department of Commerce, has undertaken the project of building near Port-au-Prince a new hotel of 35 rooms, dining and assembly halls, American bar, golf links, swimming pool, and all necessaries for comfort of guests. Every room will be provided with a shower; broad promenade and service galleries are planned for, and modern means for assuring sanitation, cleanliness, and a cuisine suited to the requirements of travellers who desire accommodations similar to that which is customary in the United States.

The initial hotel building is estimated to cost about $30,000 and probably the remainder of the investment, for equipment, furnishings, etc., will run to another similar amount.

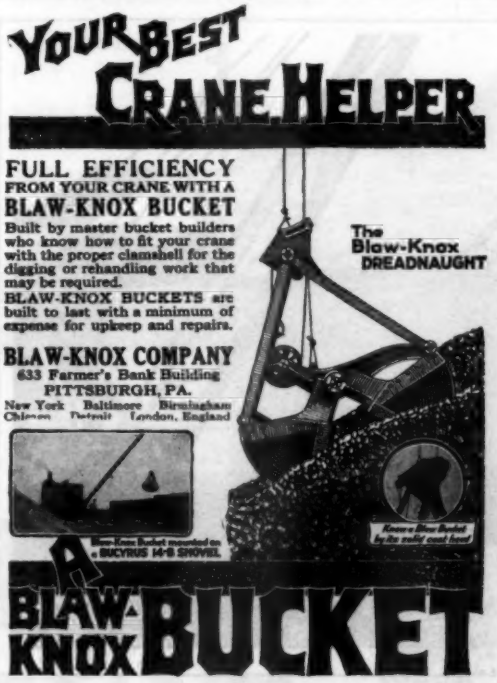
A stock subscription list is being circulated among local residents and the outlook is for an early beginning of construction.

There is a good opportunity for American firms to install plumbing, water systems, and sanitary appliances.

Here's a Problem for a Train Dispatcher

The following is taken from a law recently enacted by a state legislature to govern railway operation within its borders:

"*That when two trains using double tracks meet at a crossing, both must stop and neither shall proceed until the other has passed.*"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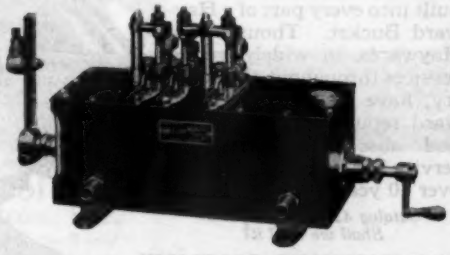
McCord Force Feed Lubricators

A McCord Lubricator removes all doubt from your lubrication problem. Large plain sight feeds on the McCord Dependable Lubricators show at all times how much oil is being delivered to every point of lubrication. Waste of oil is prevented because the amount fed is always in sight.

OIL FEED VARIES WITH SPEED OF ENGINE.

Because the lubricator conforms with the speed of the engine at all times, not too much nor too little oil is delivered, but just enough to give efficient lubrication with the least amount of wear.

Specify McCord Dependable Lubricators.



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Catalog 43 gives the facts. Shall we mail it?

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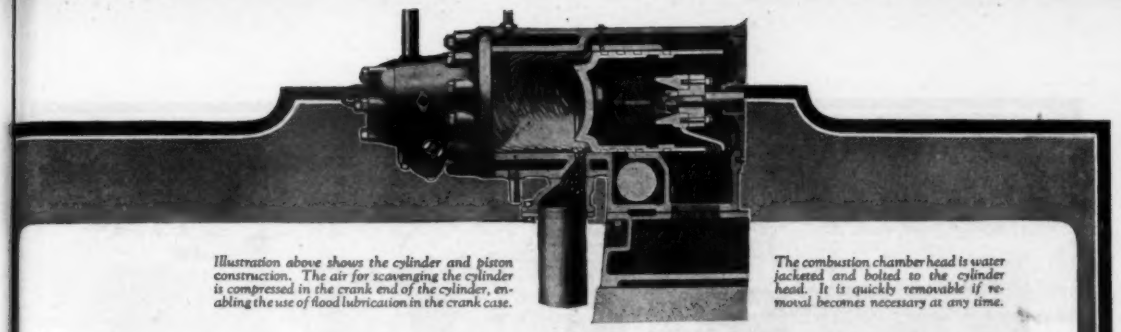

Illustration above shows the cylinder and piston construction. The air for scavenging the cylinder is compressed in the crank end of the cylinder, enabling the use of flood lubrication in the crank case.

The combustion chamber head is water jacketed and bolted to the cylinder head. It is quickly removable if removal becomes necessary at any time.

Giant Semi-Diesel Fuel Oil Engines

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ACCESSIBILITY: The design permits of easy adjustment of all parts without dismantling.

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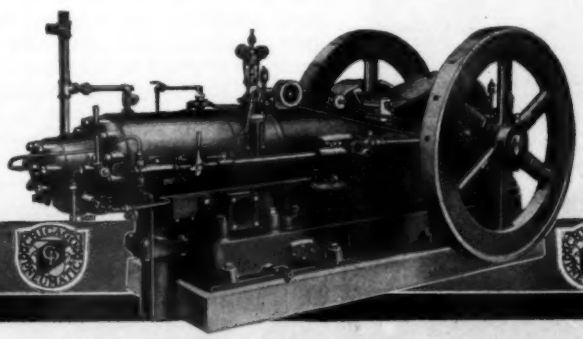
SIMPLICITY: Has no complicated ignition system with troublesome magneto, wiring, spark plugs, etc., to get out of order.



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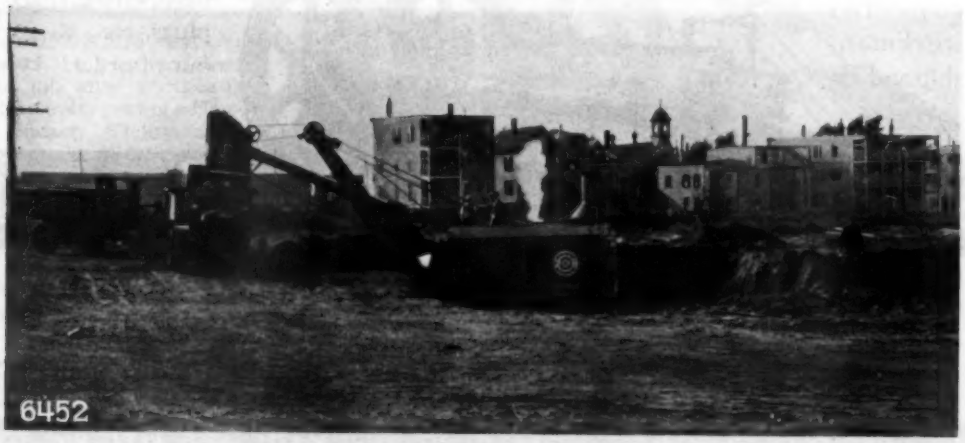

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